

# MISSOURI. Conservationist

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# A Season of Strong Partnerships

People have strong feelings about winter — you either love it or you survive it. But by the time February rolls around with its endless weeks of gray, cold weather, we're all desperate for longer daylight hours

and more outdoor time. While some may wish away winter in the hopes of spring, there is something renewing about the work that happens in winter. As American travel writer Paul Theroux wrote, "Winter is a season of recovery and preparation."

Winter is a season of great partnerships. In this issue of the *Missouri Conservationist*, you'll see the incredible partnerships between Missouri landowners and natural resource managers as they work together to protect Missouri streams and rivers. They're also improving the health of woodlands and grasslands on 63,000 acres of private and public lands. This is just one part of a bigger success story in the *Conserving Missouri's Rivers and Streams* article on Page 10.

Year-round preparation and hard work goes into the regulations process for the *Wildlife Code of Missouri*, created to keep Missouri's wildlife and habitat healthy. The Department's Regulations Committee is responsible for rules in the *Code*. The Regulations Committee, a diverse team of resource management staff from Fisheries, Forestry, Wildlife, Protection, Resource Science, and Private Land Services divisions, is a strong conduit for citizens to ensure their voices are heard throughout the entire process. Regulations Committee meetings are open to the public, and members of the public can request time to address the committee directly. If you've ever wondered how regulations are made, be sure to check out the *Regulations Update* (Page 24) for more insight.

Last, but certainly not least, one of my favorite seasonal highlights is also right around the corner with the trout opener on March 1 at Missouri's four trout parks. With a horn or shot in the air, it kicks off with a bang, signaling to all anglers wading patiently in the water that a new season has started. All their prep work during the winter, including fly tying and casting practice, is about to pay off. You can just feel the excitement in the cold morning air.

Thank you for being such a strong partner to the Department in every season. Your

caring, contribution, and concern for conserving the fish, forest, and wildlife resources are what matters most. I look forward to hearing from you — maybe even stream side at a trout opener! Get your gear and tackle ready. Spring is coming before you know it!



A handwritten signature of Sara Parker Pauley in black ink.

—Sara Parker Pauley, director

“  
WINTER  
IS A SEASON OF  
RECOVERY  
AND  
PREPARATION.”  
—PAUL THEROUX



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## WHAT IS IT?

Our photographers have been busy exploring the intricacies of outdoor Missouri. See if you can guess this month's natural wonder. The answer is revealed on Page 7.



## BALD EAGLES

I read with interest the article on bald eagles in your December issue [*Monitoring Bald Eagles in Missouri*; Page 10]. Of particular interest was the map showing Hickory County as one of the counties with six to eight active nests (one was described in the article). Another one my wife and I are aware of is downstream of the bridge over the Pomme de Terre River at Hermitage. The nest is visible from the road during the winter months. The eagles are likely to be seen any day of the year perched atop a towering, but very dead, tree nearby. It makes our day when we see them. They are a majestic bird!

*Ed Taylor, Hermitage*

The article *Monitoring Bald Eagles in Missouri* and its accompanying photos were terrific. I learned a lot of things that I never knew about this majestic creature and its presence in Missouri. My wife and I have seen a huge eagle's nest on the Meramec River in Franklin County on several

occasions, and we have always been in awe of these incredibly beautiful and powerful raptors.

Thank you for such a terrific magazine. I read it cover to cover every month and will continue to do so. We are immeasurably blessed with natural beauty in Missouri, and the *Missouri Conservationist* does a great job of showcasing that every month.

*Corbett P. Shannon, Fenton*

I always appreciate Noppadol Paothong's excellent photography, but his December 2016 cover shot was particularly timely. In November, my neighbors and I saw a bald eagle flying around the bottomlands along Massey Creek in western Cass County. We don't often see them right here in our backyard — only once more in a dozen years — so it's a rare and delightful experience. We figure the eagle was either fishing in the creek or more likely had followed ducks who make a stop at our creek each fall.

*Steve Porter, Cleveland, Mo.*

## A CONSERVATIONIST

One of my fondest country-school memories was to join MDC's new program called The Missouri Nature Knight organization. As a very young pupil (in 1946), those of us in the fourth grade in a rural one-room school in Benton County learned the basics of effective conservation. By 1963, I was teaching natural science at Hickman High School in Columbia and was encouraged by your then staff member Bill Crawford to become a charter member of the Missouri Prairie Foundation. That eventually led to my earning a post-doctorate at Harvard University, finishing at the University of Missouri-Columbia. I owe MDC a great deal, including time in the Reagan Administration — PR duties — both in D.C. and Europe.

*Charlie Campbell, Ph.D., Jefferson City*

## TIMELY BURGOO

What a surprise to find the recipe for Boone County Burgoo in the December *Missouri Conservationist* [*Cooking Wild for the Holidays*; Page 24]. I belong to a book club, and our book for December was *A Year Down Yonder*. Set in 1937, as the town celebrated Armistice Day, the ladies auxiliary cooked a large pot of stew, called burgoo, made of squirrel and lots of vegetables, and sold it for a dime a cup. I brought my copy of the magazine to book club and showed the girls. They were amazed to see a picture and recipe for burgoo. How timely! Thanks for your wonderful magazine.

*Dolores Bonnot, Washington*

## TRUMPETER SWANS

Thank you, David Stonner, for a great story on banding of trumpeter swans [January; Page 30]. I am anxious to learn more about this valuable resource.

*Stanley Field, Laurie*

## CORRECTION

On Page 24 of the January issue, we reported on a yellow-bellied watersnake that made international news when she laid eggs in 2016 after having had no contact with a male for eight years. Watersnakes do not lay eggs. They are ovoviviparous, and therefore, have live births.



### Reader Photo

### LET'S FROLIC, DEER

Brenda White of Republic captured this photo of deer in the James River while commuting to work. "Since I am not fond of traffic, I take the back roads," said White. "There is a bridge I cross each day where I drive slowly just to appreciate God's handiwork." White said there was more traffic than usual on the bridge the day she took this photo. Every time she stopped to take the photo, someone would pull up behind her. "I had to turn around and go back and forth over the bridge at least four times to get the picture," said White. "I was thankful the deer weren't in any hurry to move."





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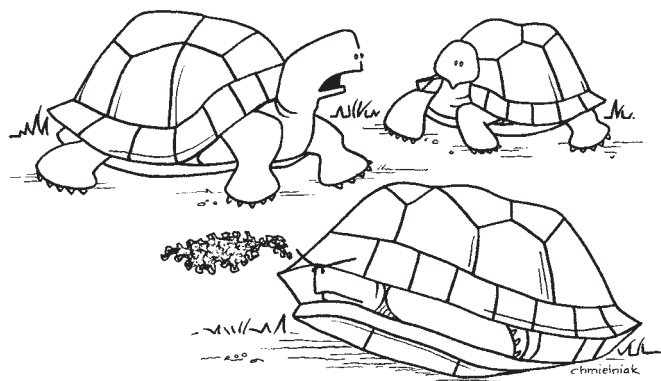
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"She's been in there fuming ever since I forgot to give her a Valentine's gift."

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# HUNTING & FISHING CALENDAR

FISHING	OPEN	CLOSE
Black Bass		
Impounded waters and most streams north of the Missouri River	All year	None
Most streams south of the Missouri River	05/28/16	02/28/17
Nongame Fish Giggling		
Impounded Waters		
sunrise to sunset	02/01/17	09/14/17
Paddlefish		
Statewide	03/15/17	04/30/17
Mississippi River	03/15/17	05/15/17
Trout Parks		
Catch-and-Release	11/11/16	02/13/17
Catch-and-Keep	03/01/17	10/31/17
HUNTING	OPEN	CLOSE
Coyote (restrictions apply during April, spring turkey season, and firearms deer season)	All year	None
Deer		
Archery	09/15/17	11/10/17
	11/22/17	01/15/18
Firearms		
Early Youth Portion	10/28/17	10/29/17
November Portion	11/11/17	11/21/17
Late Youth Portion	11/24/17	11/26/17
Antlerless Portion (open areas only)	12/01/17	12/03/17
Alternative Methods Portion	12/23/17	01/02/18
Rabbit	10/01/16	02/15/17
Squirrel	05/28/16	02/15/17
Turkey		
Firearms		
Youth	04/08/17	04/09/17
Spring	04/17/17	05/07/17
Fall	10/01/17	10/31/17
Waterfowl	see the <i>Waterfowl Hunting Digest</i> or <a href="http://short.mdc.mo.gov/ZZx">short.mdc.mo.gov/ZZx</a>	

TRAPPING	OPEN	CLOSE
Beaver and Nutria	11/15/16	03/31/17
Otters and Muskrats	11/15/16	02/20/17

For complete information about seasons, limits, methods, and restrictions, consult the *Wildlife Code of Missouri* and the current summaries of *Missouri Hunting and Trapping Regulations* and *Missouri Fishing Regulations*, *The Spring Turkey Hunting Regulations and Information*, *the Fall Deer & Turkey Hunting Regulations and Information*, *the Waterfowl Hunting Digest*, and *the Migratory Bird Hunting Digest*. For more information, visit [short.mdc.mo.gov/ZZf](http://short.mdc.mo.gov/ZZf) or permit vendors.

## Operation Game Thief

Help put game thieves out of business. If you see a possible violation in progress, call your county conservation agent immediately or dial the toll-free number below:

**800-392-1111**

All information is kept in strict confidence. Desirable information includes names of violators, vehicle description and license number, as well as the violation location.

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Greater roadrunner

## **We have greater roadrunners on our land. Harsh winters can be devastating to them. Could you recommend supplemental food sources we could contribute to help them survive?**

Greater roadrunners feed on insects, spiders, scorpions, centipedes, millipedes, lizards, small snakes, rodents, frogs, carrion, plant material, other birds, and eggs. Other animals make up about 90 percent of their diet, so it probably isn't feasible to feed roadrunners.

Wild animals are adapted to sustaining themselves without human intervention. The Department of Conservation encourages people to let "wildlife be wild," although there are some obvious exceptions to that rule, such as the help humans provide to passerine (perching) species in the form of bird feeding.

The boundary for the greater roadrunner has expanded north, possibly due to the series of mild winters in recent years. According to [eBird.org](http://eBird.org), this species has been documented as far north as Jefferson City, and several people have reported seeing them near Lake of the Ozarks. If you see a greater roadrunner, reporting your sighting to eBird is a wonderful way to contribute to science and conservation. To learn more about the greater roadrunner and hear its calls, visit [allaboutbirds.org](http://allaboutbirds.org).

## **Sometimes when I'm visiting the Department's conservation areas, I notice trees that are partially cut through and left standing to die. Why is this being done?**

The term used for partially cutting through a tree is girdling.

Both wildlife biologists and foresters use this practice to thin forests and

woodlands. It's an efficient way to improve habitat. Thinning creates more mast and dead trees, called "snags," for wildlife and opens the forest floor to more sunlight, thus allowing tree seedlings room to grow. By removing the competition for sunlight, water, and nutrients — and giving the best trees more room to grow — we create a healthier forest or woodland.



## **From time to time we have had problems with beavers. This 4-foot-deep trench is like nothing we have experienced in the past. Is this normal procedure for these mammals?**

Although beavers do not usually construct extensive canals in Missouri, in certain places in the state, particularly on smaller and shallower streams, a system of waterways may be built to float food and construction materials. Beavers also dig underwater runs, such as this one, to make movement through shallow parts of a wetland easier.

Furbearer Biologist Laura Conlee has seen this phenomenon before in recently drained wetlands.

"Beavers create runs through the wetlands, and if the water level gets extremely low, the runs are exposed. My thoughts would be that the run was dug when the water level was high — when the creek was running into the lake," Conlee said.

This video clip illustrates the phenomenon: [youtube.com/watch?v=6-kKRX6tR3E](https://www.youtube.com/watch?v=6-kKRX6tR3E)





Spring turkey hunt

## Upcoming Deer and Turkey Hunting Dates

At its meeting Dec. 16, the Missouri Conservation Commission approved recommendations by the Missouri Department of Conservation for the 2017–2018 turkey and deer hunting season dates.

### 2017 Spring Turkey Hunting Dates

- » Youth Portion: April 8–9
- » Regular Turkey Season: April 17–May 7

### 2017–2018 Fall Turkey Hunting Dates

- » Archery Season: Sept. 15–Nov. 10 and Nov. 22–Jan. 15, 2018
- » Firearms Turkey Season: Oct. 1–31

### 2017–2018 Fall Deer Hunting Dates

- » Archery Deer: Sept. 15–Nov. 10 and Nov. 22–Jan. 15, 2018
- » Firearms Deer Early Youth Portion: Oct. 28–29
- » Firearms Deer November Portion: Nov. 11–21
- » Firearms Deer Late Youth Portion: Nov. 24–26
- » Firearms Deer Antlerless Portion: Dec. 1–3
- » Firearms Deer Alternative Methods Portion: Dec. 23–Jan. 2, 2018

Details on hunting regulations, harvest limits, allowed methods, required permits, and other related information will be available in the Department's *2017 Spring Turkey Hunting Regulations and Information* booklet and the *2017 Fall Deer & Turkey Hunting Regulations and Information* booklet. Both will be available prior to the related seasons where permits are sold and at Department regional offices.

For more information on deer and turkey hunting, visit [mdc.mo.gov](http://mdc.mo.gov) and click on Hunting/Trapping on the homepage.

Buy Missouri hunting permits from numerous vendors around the state, online at [mdc.mo.gov/buypermits](http://mdc.mo.gov/buypermits), or through the Department's free mobile apps, MO Hunting and MO Fishing, available for download through Google Play for Android devices or the App Store for Apple devices.

### Apply Online for Spring Managed Turkey Hunts

Missouri youth, archery, and firearms turkey hunters can apply online for 2017 spring turkey managed hunts through the Department's website at [mdc.mo.gov/springturkeyhunts](http://mdc.mo.gov/springturkeyhunts). Managed hunt details and application procedures are outlined on the web page. Applications will be

taken through Feb. 28, and drawing results will be posted March 13.

### "No MOre Trash!" Contest

The Missouri Department of Conservation and the Missouri Department of Transportation invite Missouri public, private, and home-school students in grades K–8 to help fight litter in the Show-Me State — and to have creative and educational fun while doing it — by participating in the 2017 "Yes You CAN Make Missouri Litter-Free" trash-can-decorating contest.

The annual trash-can contest encourages school classes and groups to join in the fight against litter by decorating and displaying a large trash can with the "No MOre Trash!" logo and a litter-prevention message using a variety of creative media. The contest is part of the state's "No MOre Trash!" statewide litter campaign.

Schools may submit one entry in each competition category: K–2, 3–5, and 6–8. Entries are judged based on creativity, adherence to contest rules, and effective use of theme and logo.

First-place winners from each competition category receive \$200 awarded to the sponsoring schools. All first-place winners are then eligible for a grand prize, which includes a trophy and \$600 awarded to the sponsoring school.

There is no entry fee for the contest. Participating school groups must submit a completed entry form online with up to three photos to [nomoretrash.org](http://nomoretrash.org) by Friday, March 17. Contest rules, entry forms, logo, past contest entries and winners, and educational information can also be found at [nomoretrash.org](http://nomoretrash.org).

### Changes to Smallmouth and Rock Bass Regulations

The Missouri Conservation Commission gave final approval in December to regulation changes related to smallmouth bass and rock bass. The regulation changes become effective March 30.

The regulation changes create a standard 15-inch minimum length limit for smallmouth bass and a daily limit of one for all smallmouth bass special management areas. They also expand these areas on the Big Piney, Jacks Fork, Big, and Meramec rivers.

The existing minimum length limit for smallmouth bass of 12 inches and daily limit of six fish



remain for all other Missouri streams.

The regulation changes also set a statewide length limit of 7 inches for rock bass (also called goggle-eye, warmouth, Ozark bass, and shadow bass) and removed the Osage Fork of the Gasconade River from the rock bass special management areas.

The regulation changes are based on extensive scientific research related to bass populations and harvest with consideration of public input received, including from nine public meetings held by the Department.

For more information on bass fishing, visit [short.mdc.mo.gov/Z3p](http://short.mdc.mo.gov/Z3p).



Rock bass (goggle-eye)



## WHAT IS IT?

### Red-Bellied Woodpecker

*Melanerpes carolinus*

Red-bellied woodpeckers are common statewide and found in forests, woodlands, parks, and suburban areas. They frequent backyard bird feeders during the winter months in search of sunflower seeds and suet. Red-bellied woodpeckers forage amongst the trees for acorns, fruits, and insects, using their strong bill to chip away at bark to expose hiding creatures. Their tongue is long, barbed, and sticky, and the woodpecker uses it to extract insects from crevices. Like many other woodpeckers, this species excavates nest holes in the wood of dead or decaying trees or limbs. Clutches comprise two to six eggs, which incubate for 12 days. Young birds fledge 24–27 days later. The red-bellied woodpecker's wings are banded with narrow black-and-white lines. The male has a wide red band from its bill over the crown to the nape, while the female has red on the nape only.

—photograph by Noppadol Paothong



## CONSERVATION COMMISSION ACTIONS

The December Commission meeting featured presentations and discussions regarding grassland conservation partnerships, 2017 Missouri wild turkey hunting regulation recommendations, CWD mandatory sampling efforts and firearms opening weekend review, major construction projects, information technology projects, and the financial report. A summary of actions taken during the Dec. 15–16 meeting for the benefit and protection of fish, forests, and wildlife, and the citizens who enjoy them includes:

- » **Recognized** the Missouri Prairie Foundation with a 50th anniversary proclamation for achievements in grassland conservation and partnership with the Department.
- » **Following** consideration of public input, gave final approval of rule changes to establish daily and length limits for smallmouth bass and goggle-eye in special management areas and modify the boundaries of those areas on certain waterways as written.
- » **Approved** 2017 Missouri wild turkey hunting regulation recommendations.
- » **Approved** season dates for each portion of the 2017–2018 firearms deer hunting season.
- » **Approved** bids received for construction of the Montauk Fish Hatchery Bulk Feed Tower Project in Dent County, and authorized a contract with Cahills Construction, Inc., of Rolla. The project will receive 75 percent federal funding through a Federal Sport Fish Restoration Grant.
- » **Approved** the advertisement and sale of 1,031,214 board feet of timber located on 548 acres of Compartment 6, Sunklands Conservation Area (CA) in Shannon County.
- » **Approved** the advertisement and sale of 518,840 board feet of timber located on 571 acres of Compartment 2, Rocky Creek CA in Shannon County.
- » **Approved** the purchase of two tracts in Jefferson County consisting of 18.34 acres and 32.52 acres, respectively, and accepted the donation of an adjacent tract consisting of 24.99 acres as an addition to Young CA.
- » **Approved** the purchase of 69.93 acres in Platte County as an addition to Platte Falls CA.
- » **Approved** the purchase of 40 acres in Cass County as an addition to Settle's Ford CA.
- » **Approved** the nomination of Leo A. Drey for induction into the Missouri Conservation Hall of Fame.
- » **Approved** the nomination of Glenn Chambers to receive the Master Conservationist Award.

The next Conservation Commission meeting is Feb. 16–17. For more information, visit [short.mdc.mo.gov/ZZe](http://short.mdc.mo.gov/ZZe) or call your regional Conservation office (phone numbers on Page 3).

# Partnering With Hunters and Landowners to Slow CWD

BY BILL GRAHAM

MASSIVE SAMPLING EFFORT SHOWS MANAGEMENT IS WORKING

THANK YOU DEER HUNTERS AND LANDOWNERS, your help is invaluable in the Conservation Department's efforts to limit chronic wasting disease (CWD) in Missouri's deer herd. Tests from harvested deer guide future management, and results suggest that proactive management has limited the disease.

A half-million deer hunters harvested more than 263,000 deer during the past hunting seasons, so Missouri's deer herd is still robust. However, CWD is a serious long-term threat — one the Missouri Department of Conservation (MDC) is proactively addressing with the help of hunters and landowners.

MDC conducted a massive, unprecedented sampling of 19,200 deer harvested during opening weekend of last fall's firearms deer season. Those deer were from a 29-county CWD Management Zone surrounding prior cases. Testing lymph nodes from those deer revealed five new CWD cases. A sixth case was also recently found in a deer harvested by a landowner utilizing special permits issued in core zones. That's critical because knowing the locations and prevalence of CWD helps wildlife managers battle a deadly deer disease, but one thus far mostly limited to a relatively small number of deer in northeast and eastern Missouri.

CWD is a fatal degenerative brain disease without a cure that affects deer, elk, and moose. The cause is associated with misshapen proteins in cells called prions. Test results from the deer harvested in the CWD Management Zone provide both concern and encouragement.

MDC biologists are concerned because two new cases — one in southwest Franklin County and another in



Conservation Department staff remove a lymph node for CWD testing during opening weekend of last fall's firearms deer season. More than 19,000 samples were collected across 29 counties.

southeast Jefferson County — were quite a distance from previous CWD sites. However, an upside is tests did not find substantial CWD expansion in deer harvested near core areas in Macon and Adair counties where past cases were found. Adair County had one new CWD case confirmed and Macon County had two new cases.

Since early 2012, landowners and MDC staff with permission from landowners have taken additional deer following the hunting season in small CWD core areas in Macon and Adair counties. Those efforts removed deer with CWD and reduced the chances of disease transmission.

NOPPADOL PATHONG



"It suggests the management we've done in these areas is working because we're not seeing a steady increase in prevalence," said Barbara Keller, MDC resource scientist. "The cooperation and sacrifice made by many local landowners has been critical in slowing the spread of CWD in Macon and Adair counties."

Also in recent tests, one new case was confirmed in northern Franklin County in the vicinity of a case confirmed during the 2015–2016 hunting season. Mandatory sampling and testing found no new cases in Cole or Linn counties. Each had one case in past years.

MDC has conducted sampling for CWD since 2002. Because of this prolonged history of CWD testing, biologists did not expect to find a large number of cases from the mandatory sampling effort. The five recently confirmed cases out of more than 19,200 samples confirmed that expectation.

"This history of sampling means that when we're finding it, it is not very well established," Keller said. "We're finding it early. But the recent positives may have gone undetected for some time without the huge sampling effort last fall."

MDC's proactive approach protects deer treasured by wildlife watchers and hunters. Deer hunting in Missouri generates \$1 billion annually. Large-scale disease testing and reducing deer numbers in specific target zones are exhaustive measures. But they draw on best-known practices to protect the entire state's white-tailed deer heritage.

Some states that have not taken far-reaching steps to limit CWD have seen the disease spread broadly across deer habitat, said Jason Sumners, MDC Wildlife Division chief. In Wisconsin, the prevalence of CWD is steadily rising, with more than 40 percent of adult male deer in one core area infected with the disease. Illinois, however,

has had success limiting CWD spread by aggressive management in the corner of the state where the disease was found.

"Our goal is to detect it as early as possible so we can implement management practices that limit the number of deer infected with the disease, and in doing so limit the geographic spread," Sumners said. Otherwise, "at some point, if we're not successful, it's no longer a local issue but a regional or a statewide issue."

The Department will adjust the CWD Management Zone and surveillance practices in target areas according to research data in specific locations, he said. Additional counties near confirmed cases may be added to the management zone.

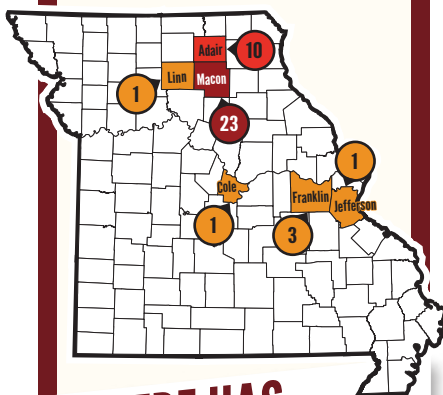
Also, increased testing of deer began in southwest Missouri after CWD was detected in northwest Arkansas. MDC staff collected samples from road-killed deer, and hunters offered deer harvested during the recent season for testing. No deer in southwest Missouri have tested positive for CWD. But MDC will likely continue enhanced sampling efforts there as a precaution.

CWD management may temporarily drop deer numbers in small target areas.

"It is an unfortunate but necessary step to protect the state's deer herd," Sumners said.

But deer populations rebound quickly in good habitat. Missourians value deer and all wildlife, so MDC is sparing no effort to battle CWD.

"We're trying to do everything we can to ensure for the long term the health of our deer herd so our children and grandchildren can continue to enjoy them," Sumners said. ▲



## WHERE HAS CWD BEEN FOUND IN MISSOURI?

The first cases of CWD in Missouri were detected in 2010 and 2011 in captive deer at private big-game breeding and hunting facilities in Linn and Macon counties. A total of 11 cases were confirmed in captive deer at the facilities. **The total number of Missouri free-ranging deer that have tested positive for CWD is 39, with 23 found in Macon County, 10 in Adair, three in Franklin, one in Jefferson, one in Cole, and one in Linn.**

The Centers for Disease Control says there is no evidence that CWD can be transmitted to humans. But the agency recommends that humans not consume deer that look sick or have tested positive for the disease.

For more information on CWD, visit [short.mdc.mo.gov/Z3N](http://short.mdc.mo.gov/Z3N).

*Bill Graham is a media specialist for the Kansas City and Northwest regions who lives near Platte City.*





NOPPADOL PAOTHONG





# Conserving Missouri's **Rivers** and **Streams**

**Across the state, partners work to protect  
our vital ribbons of life** BY BONNIE CHASTEEN



**W**ITH MORE THAN 110,000 MILES OF FLOWING water, Missouri is rich with rivers and streams. Prairie streams weave through our grasslands, clear Ozark streams tumble through our hills, Mississippi River lowland streams dissect the Bootheel, and two of America's biggest rivers merge near St. Louis.

We rely on rivers and streams for our quality of life, and we all have a role to play in caring for them. As Missouri Department of Conservation Director Sara Parker Pauley often says, "Conserving our state's water resources is an all-hands-on-deck undertaking."

In Crawford and Washington counties, one dedicated team of landowners and natural resource managers has been working hand-in-hand to protect their Ozark streams since 2010. They call themselves Shoal Creek Woodlands for Wildlife (SCWW), and they take a watershed approach to their work.

### **Savvy Landowners Meet the Needs of Land and People**

St. Louis Region Fisheries Management Biologist Rob Pulliam helped the team get started, and he enjoys talking about their work. "This is truly a bottom-up, self-organized effort," he said. "Everyone — landowners and natural resource professionals alike — participated in scoping our challenge, identifying needs, setting goals, and implementing practices."

SCWW aims to improve the health of woodlands, grasslands, and streams within the Meramec River watershed, an area including about 63,000 acres of private and public land between the Huzzah and Courtois creeks.

Many of the participating landowners are farmers and ranchers, and most have oak-hickory and oak-pine woodlands on their land. Some of the key challenges they

identified were improving pasture, controlling erosion, improving timber, and improving fish and wildlife habitat.

"Listening to people's natural-resource management needs was a critical first step," Pulliam said. "For conservation practices to work over the long haul, they have to help people solve real problems."

With this in mind, the team uses practices that meet the needs of the land and its people. These range from seeding pastures with clover, a natural source of nitrogen, to installing alternative livestock watering systems designed to keep cattle out of streams by providing them with a reliable source of clean water. To learn more about management practices that improve woodland habitat for migrating songbirds as well as timber yields, landowners hold farm tours to show and share techniques that work for them.

"Natural resource managers are on-hand to help answer technical questions," Pulliam said, "but the main focus is on the landowners' efforts."

A big help in the team's work is cost-share opportunities available from various conservation partners. "Even if you've seen a practice work, it's hard to implement it on your land if you can't afford it," Pulliam said.

Government and nongovernment conservation partners alike have helped the team pay for such efforts as planting trees to stabilize stream banks, building reliable water crossings to minimize erosion, and installing grazing and livestock-watering systems. "Because we've got a solid landowner committee, we can match the right practices with needed services and leverage dollars up to 90 percent of the cost of a practice."

Steve Yocom, a member of the SCWW team, agrees. "Ninety-percent cost-share makes it affordable," he said. "If you have a desire to help conserve habitat, there's help out there."

**Shoal Creek**



NOPPADOL PAOTHONG



# Habitat HEROES



**Crawford County ranchers Steve Yocom and Rachel Hopkins use alternative livestock watering systems and moveable fencing to protect their Huzzah Creek stream banks and improve their cattle operation.**

Steve Yocom's Crawford County farm has been in his family for almost 100 years. His land includes a mile of stream frontage along Huzzah Creek, a major tributary of the Meramec River and an area of high natural diversity.

"What drew my grandfather to this land was the source of fresh water. He was amazed at it," Yocom said.

Yocom and his wife, Heidi, are passionate about their land, and they are determined to make it easy for their daughter, Rachel Hopkins, and her husband, Joe, to take over the work when they are ready to retire.

"Rachel always loved the farm, so she naturally became my business partner," Steve said. "I let her take over the newer ideas."

To make this eventual transition successful and secure, the Ycoms and Hopkins, an agricultural business specialist with the University of Missouri Extension, have taken steps to make running the farm easier, especially for just one or two people. They've also improved the land's stream, grassland, and woodland habitat in the process.

Charter members of the SCWW team, the Ycoms and Hopkins have worked with a number of local, state, and federal conservation partners to stabilize their stream-front acres, fence their cattle away from stream banks, improve their livestock forage base, and develop

alternative water systems to support rotational grazing.

"We've already seen how this system improves plant vigor in our paddocks," Hopkins said.

One of the most important things they've done to conserve their land and water over the long-term is enroll two parcels of it into conservation easements with Ozark Regional Land Trust (ORLT). A conservation easement is a voluntary, legal agreement between a landowner and qualified conservation organization that helps families permanently protect their land from development.

"Our conservation work with Steve is consistent with his objectives," ORLT staff member Abigail Lambert said. "We listened and were able to offer options that met his needs and our goals, too."

The Yocom family has worked with ORLT to protect over 400 acres of farmland along the Huzzah. "We appreciate the Department of Conservation and Ozark Regional Land Trust for the programs they have provided," Yocom said.

"Together with the Department of Conservation and ORLT, we are showing there is room for agriculture and conservation to coexist."

Watch more of the Yocom family story at [short.mdc.mo.gov/ZJR](http://short.mdc.mo.gov/ZJR).

## Conserving Rivers and Streams Statewide

Across the state, a diverse array of public and private conservation partners is working to implement best management practices in priority watersheds and other aquatic conservation opportunity areas. These are places where stakeholders can do the most good for river and stream habitats, as well as the fish, forests, wildlife, and people that depend on them.

### Grassland/Prairie Streams

These generally occupy the northern half and a portion of the western side of the state. They are low-gradient streams with fine substrates. Historically, they were very curvy, but today many have been channelized.

In the Spring Creek Watershed, which encompasses the 8,262-acre Union Ridge Conservation Area, partners are protecting 32 miles of prairie stream. This effort benefits the endangered Topeka shiner and seven species of sensitive freshwater mussels.

### Ozark Streams

These are found in the middle of the state down to its southern border. They have coarse, rocky substrates and steeper slopes than do grassland/prairie streams. Karst topography can also influence the character of Ozark streams. Where grassland/prairie and Ozark landscapes meet, streams can contain a mixture of physical and life form characters of both stream types.

In the Little Niangua River Watershed, low-water crossings fragmented local populations of the federally threatened Niangua darter. Partners have replaced 10 low-water crossings with bridges on 55 miles of stream,

reconnecting the isolated darter populations. Restoring access to more mates and better habitat improves the species' chances of recovery.

### Mississippi Lowland Streams

Occupying the southeastern corner along the Mississippi River through the Bootheel region of Missouri, these streams are very flat and have sandy alluvial substrates. Past channelization has made heavy impacts on many of these lowland streams.

Partners are using the federal Wetland Reserve Easement Program (WREP) and other tools to increase the matrix of private and public land managed for moist-soil communities such as oxbows, riverine wetlands, and bottomland hardwood forest, all of which historically had strong interconnectivity to the lowland streams.

### Big Rivers

Two of America's greatest rivers have their confluence in Missouri. Known as "the big rivers," the Missouri River divides the state into north and south, and the Mississippi River runs along the state's eastern border.

The Department's Missouri River Field Station is leading MDC's efforts to reestablish the state's federally endangered pallid sturgeon population. Every year since 2008, they have harvested wild pallid sturgeon as brood stock and taken them to Blind Pony Fish Hatchery. To date, 140,000 pallid sturgeon hatchlings have been stocked into the Missouri River below Gavin's Point Dam. ▲

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*Bonnie Chasteen is associate editor for the Missouri Conservationist. She enjoyed talking with people who are passionate about conserving rivers and streams for this story.*

As part of cooperative efforts with the U.S. Fish and Wildlife Service to restore the Topeka shiner to its historic range, Resource Science Supervisor Doug Novinger releases hatchery-raised fry into Spring Creek.







Landowner Bill Cavins has enrolled over 5,000 acres of Bootheel farmland in the WREP program.



The Missouri River Field Station is leading MDC's efforts to re-establish the state's federally endangered pallid sturgeon population.



Doug Novinger conducts Niangua darter surveys in Tavern Creek near Iberia.

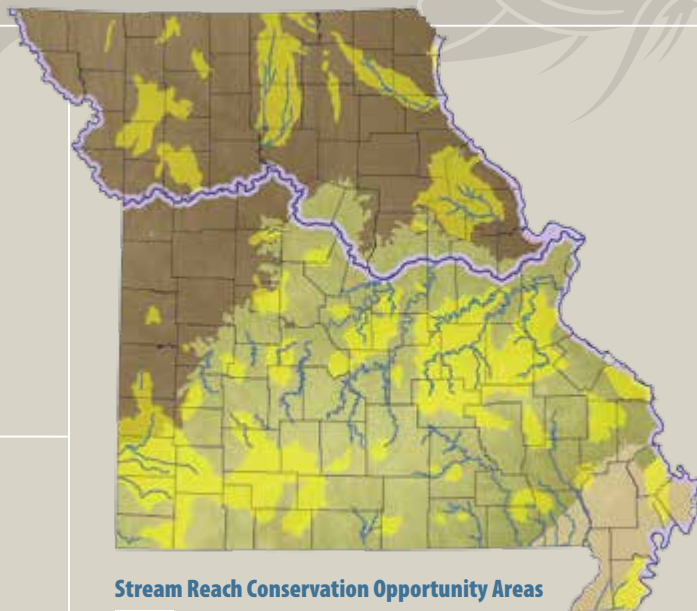
AWRP PROGRAM, NIANGUA DARTER SNORKELING-DAVID STONNER; PALLID STURGEON- BILL GRAHAM



# Rivers and Streams

## Stream Regions and Priority Watersheds

Missouri has four general stream regions: grassland/prairie, Ozark, Mississippi lowland, and big river. Each region supports its own unique suite of plants and animals, and each is vital to the well-being of our communities. We depend on them for drinking water, manufacturing, irrigation, and outdoor recreation. Priority watersheds are important biological and/or recreational areas where landowners and other partners are encouraged to team up with the Department to conserve our flowing waters and related natural communities.



### Stream Reach Conservation Opportunity Areas

- Missouri and Mississippi Rivers
- Rivers and Major Streams
- MDC Priority Watersheds

### Stream Regions

- Grassland/Prairie
- Ozark
- Mississippi Lowland
- Big River

## Plants and Animals of Greatest Conservation Need



Coldwater crayfish



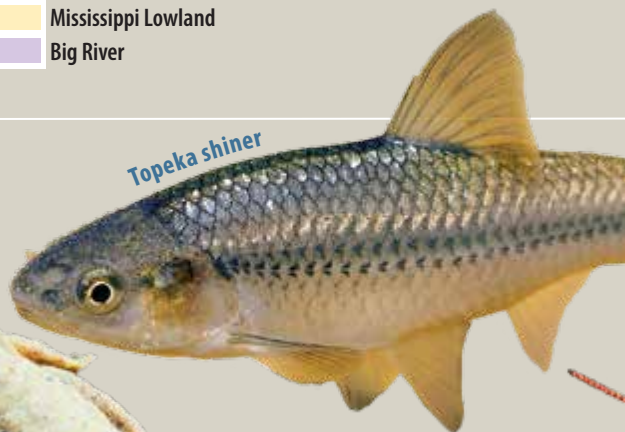
Northern brokenray



Alligator gar



Ozark hellbender



Topeka shiner

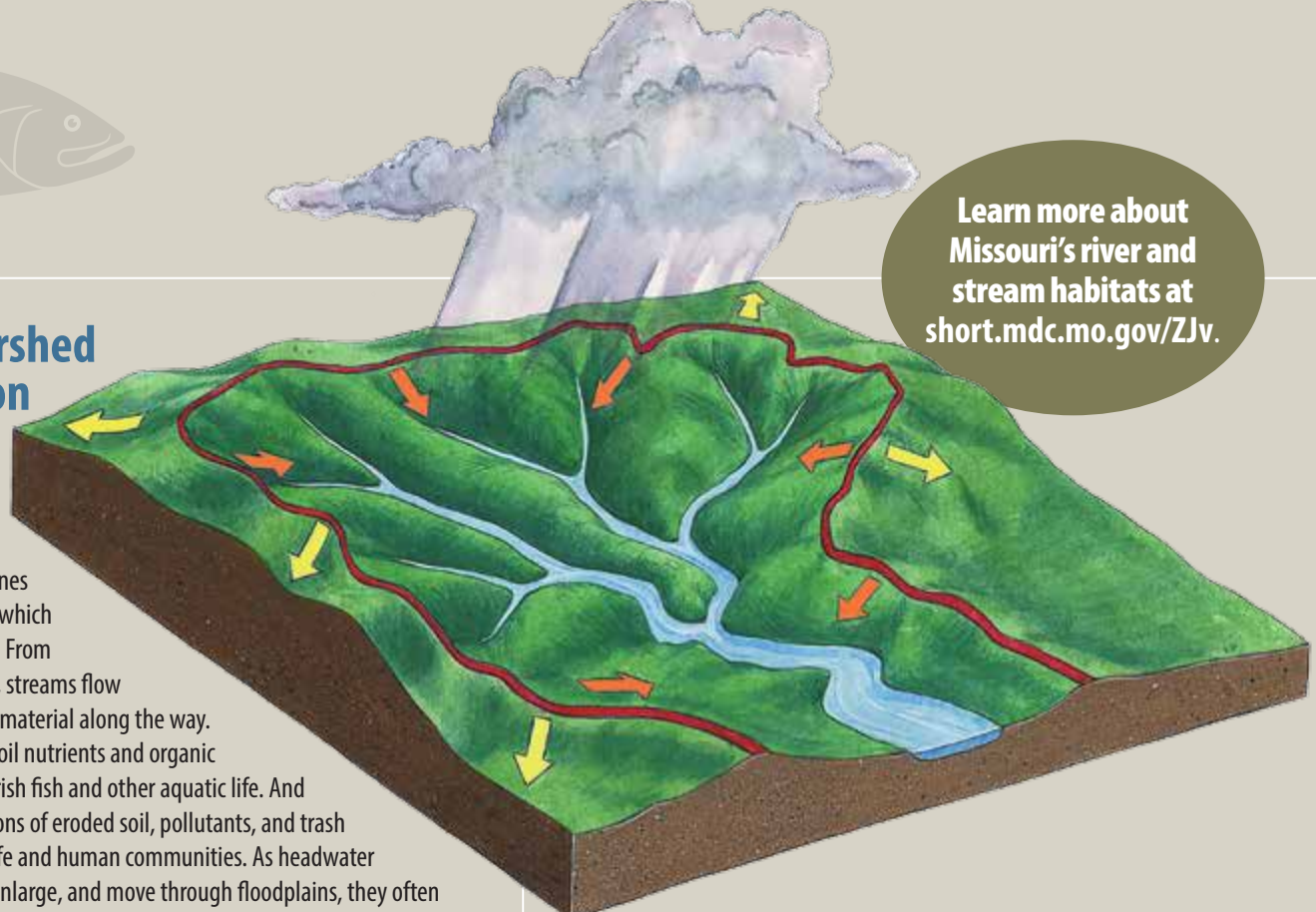
NORTHERN BROKENRAY: CLIFF WHITE; COLDWATER CRAYFISH, ST. FRANCIS RIVER CRAYFISH: CHRIS LUKHAUP;  
ALLIGATOR GAR, OZARK HELLBENDER: NOPPADOL PAOTHONG; TOPEKA SHINER, ALLIGATOR SNAPPING TURTLE: JIM RATHERT





## The Watershed Connection

Surrounding ridgelines define watersheds, which give rise to streams. From upland headwaters, streams flow downhill collecting material along the way. Some of it — like soil nutrients and organic matter — can nourish fish and other aquatic life. And some of it — like tons of eroded soil, pollutants, and trash — can harm wildlife and human communities. As headwater streams converge, enlarge, and move through floodplains, they often change in flow from ephemeral (appearing only in wet weather) to intermittent (sinking underground or drying up in some places) and eventually into larger perennial streams, which flow year-round due to their connection with groundwater. Each juncture along a stream's pathway gives rise to unique characteristics, habitats, and life forms critical to the food chain and connectivity of the river system as a whole.



Learn more about Missouri's river and stream habitats at [short.mdc.mo.gov/ZJv](http://short.mdc.mo.gov/ZJv).

## What You Can Do

Whether you own a large farm, a few acres outside of town, or a home downtown, you can help conserve rivers and streams in your local watershed.

### Ask for Help

If you own rural property, your county's private land conservationist or fisheries management biologist can help you assess your river and stream conservation needs, and then match them up with appropriate technical assistance and cost-share opportunities. Find your regional office phone number on Page 3.

### Join or Form a Stream Team

Missouri Stream Team is a volunteer program that can help you conserve Missouri streams through education, advocacy, and stewardship. Members can monitor water quality, pick up trash, plant streamside trees, and much more. This program is a partnership between the Department, the Conservation Federation of Missouri, and the Missouri Department of Natural Resources. Learn more at [mostreamteam.org](http://mostreamteam.org).

### Help Control Invasive Species

Invasive species destroy habitat and displace or out-compete native plants and animals. A few well-known examples of aquatic invasive species are zebra mussels, Asian carp, and an alga known as didymo or "rock snot." Don't dump bait, don't buy exotic baits, clean your boat and gear between fishing trips, and call your regional office to report infestations when you see them. Find phone numbers on Page 3.

### Experience More Rivers and Streams

With more than 1,000 conservation areas in Missouri, you can find public accesses to rivers and streams throughout the state. Visit [mdc.mo.gov/atlas](http://mdc.mo.gov/atlas) to find public access to flowing waters near you.



Alligator snapping turtle

St. Francis River crayfish



# WONDERFUL WALLEYE



NOPPADOL PAOTHONG





## Missouri's most delicious sport fish is a little wacky

BY JIM LOW





**I**F YOU'RE LIKE MOST MISSOURI anglers, you've never caught a walleye on purpose. If you've eaten one, you probably wished you could get more. But the ways of the walleye are mysterious, and few Show-Me State anglers have cracked the code.

That's because walleyes are a little wacky. They are active throughout winter, when most anglers are indoors. And while walleyes' habits are similar to those of more popular game fish, they also differ in important ways.

## The Lure

Some walleyes' quirks result from their large, milky blue eyes, which are made for finding prey in low light. This sensitivity makes them shy of bright light. They retreat to deep water during the day, coming into shallower water to feed from dusk to dawn.

Fishing in low light calls for bright colors, like chartreuse and white. Jigs and spoons are great lures for working deep water where walleye lurk. Let these lures touch bottom, then raise your rod tip sharply a foot or two and let them fall back to the bottom. The trick to jigging is following the lure's fall with your rod tip so you remain in touch and can feel the slight bump-bump of a bite. Low-stretch line and sensitive rods help. So does draping the line over your index finger.

If you try to set the hook when you feel a tap, you will pull the lure out of the fish's mouth. Instead, lower your rod tip momentarily to give the fish time to mouth the lure, and then set the hook when it turns to swim away.

In the springtime, when the surface temperature of the water is below 60 degrees, you can catch



Walleye stocking at Smithville



Walleye fingerlings

walleyes in the middle of the day. Once water temperatures top 70 degrees, walleyes tend to feed in deep water. Even in the summer, however, they sometimes visit shallower water at night, especially on moonless nights.

Like crappie, walleyes are schooling fish. So when you hook one, it pays to mark the spot and fish it again. Walleyes share black bass' taste for crayfish and small fish. But unlike bass, walleyes have a strong preference for fish. They also are more finicky than bass, which eagerly snap up artificial lures without special enticements. Walleyes, on the other hand, are much more likely to grab a minnow imitation if the trailing hook is decorated with half a night crawler.

The Conservation Department stocks 1 to 2 million walleye fingerlings in Missouri lakes and streams each year. These fish, plus those spawned naturally, are so widely distributed, it might be simpler to list the places where not to look for them.

Here are a few of the state's top walleye lakes and streams, along with fishing tips that can be used on similar waters.





Walleye fisherman on Stockton Lake

## LAKES

Stockton Lake is a walleye standout. Angler Marty Thompson uses a sonar graph to help him find Stockton's abundant walleyes. He scans the screen for black balls that represent schools of gizzard shad. Walleyes follow these schools like wolves stalking herds of grazing animals. The "wolves" show up as crescent shapes on Thompson's fish graph. Blurred crescents mean fast-moving fish feeding on shad.

Stockton's water chills down into the 40s during the winter. Because shad prefer warmer water, Thompson often finds them around submerged springs during the winter. When the wind blows out of the south for a few days in a row, it pushes microscopic food that shad eat toward the dam at the lake's north end.

"You can use the current that the wind creates to your advantage," says Thompson. "Walleye will be on submerged rocky points and bluffs, grazing on passing schools of shad." He said fishing 20 to 30 feet deep along bluffs at such times also can be very effective. Bluffs are favorite walleye hangouts because the shade they create prolongs twilight until nearly mid-day.

Lake walleyes also gather around submerged humps. These spots permit walleyes to forage in shallower areas without having to move far from the security of deep water. Also, humps tend to be rocky or gravel-covered.

Thompson fishes spoons or jigs with white or chartreuse curly-tailed jigs. He trolls these rigs at 1 to 1.5 mph. Often he can do this by drifting with the wind. He monitors his speed with his fish graph's GPS function and uses his trolling or main motor when necessary to maintain the desired pace.

In February or March, Stockton's walleyes move up the arms of the lake to spawn. A warm rain this time of year can spark enough activity to allow even inexperienced walleye anglers to catch fish. Rocky points south of the dam and the rock-lined surface of the dam itself also can be productive this time of year.

Not all walleye lakes are big. MDC Fisheries Management Biologist Travis Moore says the best walleye spot in northeast Missouri is Lake Show-Me in Scotland County. To find the walleye hot spot near you, visit [short.mdc.mo.gov/Z3G](http://short.mdc.mo.gov/Z3G).





## STREAMS

The Mississippi River is among Missouri's top walleye streams. In the winter, the best approach is fishing from a boat below one of the dams north of St. Louis. Focus on places where slack water and current meet. Hidden in the Mississippi's murky water are gravel humps and sandbars where walleyes hang out. Use sonar to find these, and anchor downstream. Then bounce lures around submerged humps where the water is 5 to 15 feet deep.


Below the dams, walleye action drops off as April nears. After that, walleye can be found foraging along the leading edges of wing dikes from dusk to dawn. They retreat to scour holes on the downstream side during the day.



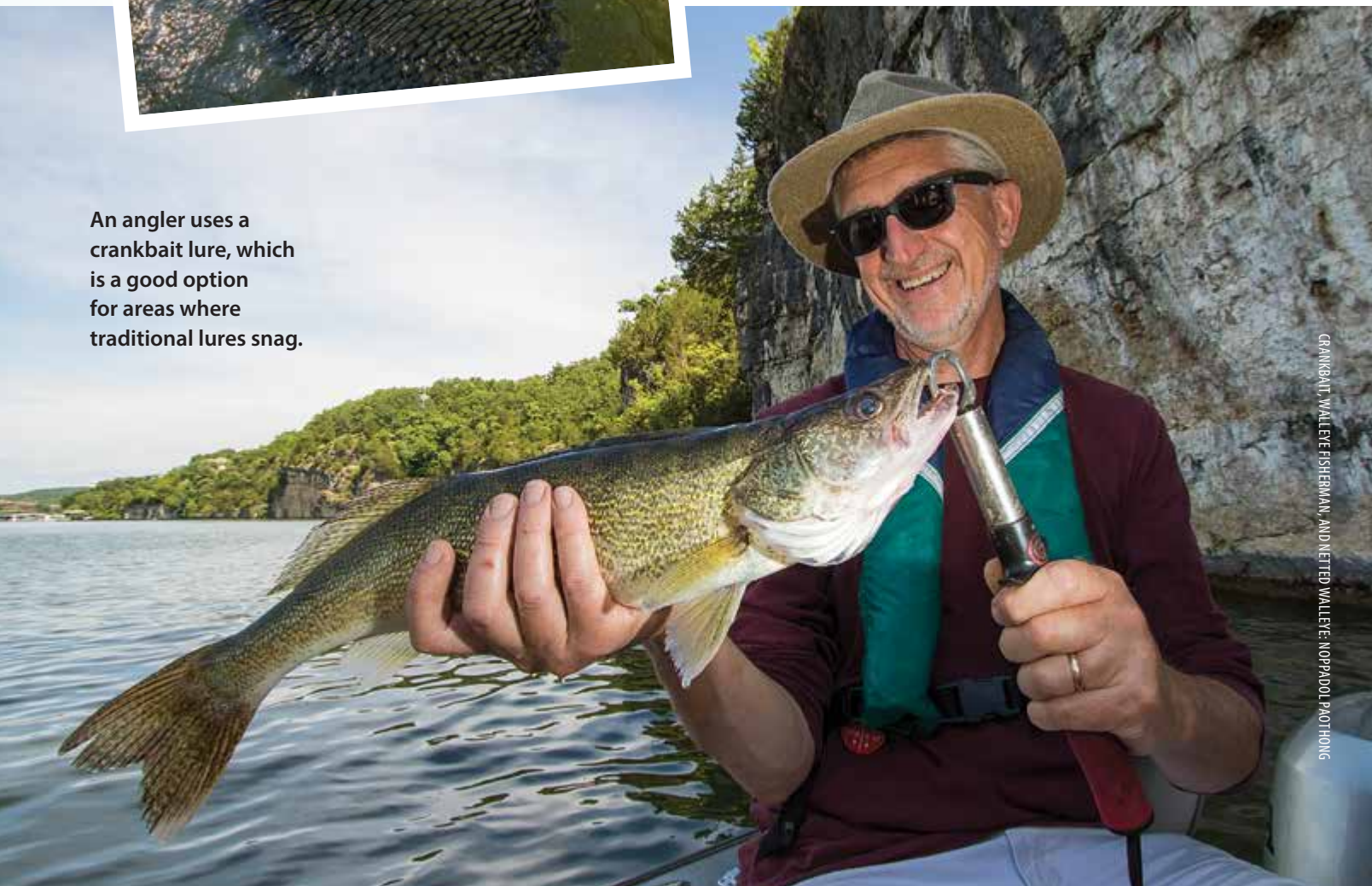
Crankbaits are a good choice for these spots, which tend to snag lures that touch bottom.

Dozens of smaller Missouri streams offer excellent walleye fishing. The Black and lower Current rivers are your best bets for big 'eyes. In these streams, walleyes inhabit deep pools, deep, swift runs, and where riffles enter pools. The mouths of feeder streams and the deep sides of sharp bends also are walleye hangouts. Retired Fisheries Biologist Tom Russell found walleyes on the Current River preferred pools at least 12 feet deep with boulder-lined bottoms. This last detail is significant because walleyes are sight predators, so they prefer clear water. They like areas where the current keeps silt from settling on sand, gravel, or rock bottoms.

Walleyes make spring spawning runs upstream from nearly all of Missouri's big reservoirs when water temperatures are between 40 and 50 degrees. At Mark Twain Lake, the north and south forks of the Salt River are best. Stockton Lake's walleye spawning run culminates in riffles where the Little Sac River and Turnback Creek enter the lake. Spawning runs also occur on the Kings River arm of

A photograph showing a fishing net being used to catch a walleye. The net is black and has a green handle. The fish is visible inside the net, and the water is dark and murky.

A landing net allows anglers to avoid walleyes' sharp teeth.

A large photograph of a man wearing a hat and sunglasses, smiling while holding a large walleye. He is using a metal tool to hold the fish's mouth. The background shows a rocky shoreline and water.

An angler uses a crankbait lure, which is a good option for areas where traditional lures snag.





Current River pool

Table Rock Lake and below Lake Taneycomo, Clearwater and Bagnell dams. Bank anglers will find good opportunities below Clearwater Dam and at the Hendrickson Access off Highway 67 north of Poplar Bluff.

If you succeed in breaking the walleye code, why not give the walleye encrusted recipe from *Cooking Wild in Missouri* a try. The cookbook is available at Conservation Department regional offices, nature centers, or from the online Nature Shop at [mdcnatureshop.com](http://mdcnatureshop.com). For recipes online, visit [short.mdc.mo.gov/Z3U](http://short.mdc.mo.gov/Z3U). ▲

*Jim Low has more time for fishing since retiring from his job as the Conservation Department's news services coordinator in 2015. He is game for any kind of fishing, whether it involves game fish or not.*



### Doing the Lindy Hop

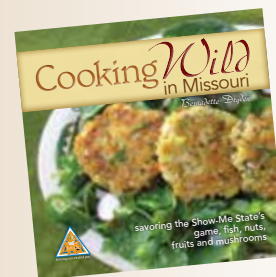
The quintessential walleye lure is the Lindy Rig, named for its inventor, Al Lindner, a walleye fishing legend. It starts with a "walking" sinker slipped onto the line above a barrel swivel. To the other end of the swivel, tie 18 inches of light monofilament with a tiny float attached. A No. 4 hook with a night crawler or small minnow finishes the rig. The walking sinker minimizes snagging, while holding your bait near the bottom. The float holds the bait at eye level for fish lying just off the bottom, where it wriggles enticingly.

## WALLEYE ENCRUSTED

with breadcrumbs and almonds

Serves 2

- 1-pound walleye fillet
- ½ cup almonds
- ½ cup breadcrumbs
- 1 tablespoon unsalted butter, melted
- 2 tablespoons Dijon mustard
- 1 tablespoon parsley
- 2 tablespoons Parmigiano-Reggiano cheese, finely grated
- 1 tablespoon extra-virgin olive oil
- Salt and freshly ground pepper



**Preheat** oven to 350°F. Generously oil a broiler pan and place fish in the pan flesh side up. Sprinkle with salt and pepper. In a food processor, mix nuts and breadcrumbs until nuts are finely chopped, and then transfer to a bowl. Mix in butter, mustard, parsley and cheese. Gently press the crumb mixture onto the fish, covering entire fillet on one side. Drizzle the olive oil over the fillet and bake until flesh is opaque.

**Raise** your oven rack and preheat broiler. Broil fish until crust is golden. Don't take your eyes off the fish while it is under the broiler. The crust browns rapidly, and — depending upon your broiler and the distance between the heat source and the fish — you should have a golden crust within a minute or two.

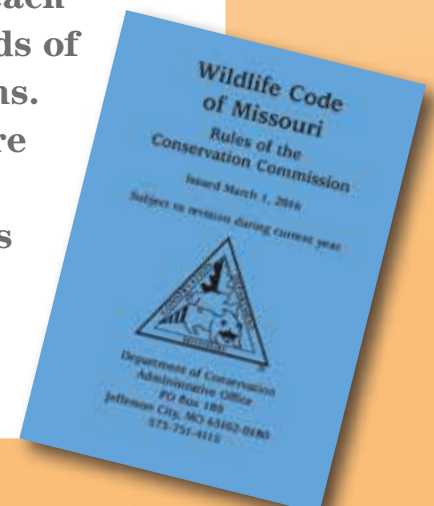
**Serve** the fish with lemon wedges and a quick sauce made with plain yogurt, fresh minced dill and a few squirts of fresh lemon juice. Accompany with new potatoes and fresh, edible-pod peas tossed together with fresh herbs and butter.

# 2017 Regulations UPDATE



## Missourians care deeply about our state's fish, forests, and wildlife.

To ensure these resources are protected, the Conservation Department reviews the *Wildlife Code of Missouri* each year. In doing so, the Department considers hundreds of suggestions from hunters, anglers, and other citizens. Although every suggestion cannot be adopted, all are carefully reviewed. The following is a summary of key changes to the *Wildlife Code of Missouri*. Unless noted otherwise, the changes have already gone into effect. For a complete listing of regulations, visit [mdc.mo.gov/about-regulations](http://mdc.mo.gov/about-regulations).







## MISSOURI OUTDOOR RECREATIONAL ACCESS PROGRAM

Missouri is a world-class place to hunt, fish, and experience nature. Many regulations provide opportunities to engage in outdoor activities.

A new rule in the *Wildlife Code* offers a win-win program for wildlife enthusiasts and landowners. The Missouri Outdoor Recreational Access Program (MRAP) provides incentive payments to landowners who volunteer to open their properties to the public for hunting, fishing, or wildlife viewing. Additional incentives also are available to enhance wildlife habitat on enrolled lands.

To enroll in MRAP, a landowner must offer at least 40 contiguous acres, and at least 20 percent of the tract must provide quality habitat, such as native grass fields, wildlife-friendly field borders, brushy fencerows, restored wetlands, or managed woodlands. Land offered for fishing access is exempt from the 40-acre requirement.

MRAP lands are open to foot traffic only, and parking generally occurs along public roadsides. Access is permitted from one hour before sunrise until one hour after sunset, and no equipment or gear should be left on the property outside of these hours. Participating landowners determine the type of public activities they want to allow on their property by selecting one of six options:

- **All access hunting and fishing** — Public users may pursue hunting and fishing under statewide regulations throughout the year.
- **Archery hunting** — Public users may archery hunt under statewide regulations. Access is provided from Sept. 15 to Feb. 15 and during the spring turkey seasons.

- **Fishing** — This option allows only fishing under statewide regulations throughout the year in waters designated by the landowner.
- **Small game and turkey hunting** — Public users may pursue turkeys, frogs, rabbits, squirrels, quail, pheasants, rails, snipe, doves, woodcocks, and waterfowl. Access is provided during the legal seasons for these species.
- **Wildlife viewing** — Public users may hike, photograph, and enjoy nature throughout the year. All hunting and fishing activities are prohibited.
- **Youth hunting and fishing** — Hunters and anglers 15 and younger may pursue game and fish under statewide regulations throughout the year. An adult must accompany a youth hunter or angler, but the adult is not allowed to hunt or fish.

Annual payment rates to the landowner are determined by the access type selected, the amount of quality habitat available, and other factors. Most landowners will earn \$15–\$25 per acre each year they participate. Payment rates for fishing-only access will be on an adjusted scale and will be based on impoundment size or stream length. Landowners are offered protection from liability under Missouri's Recreational Use Immunity Law. For more information about MRAP, visit [mdc.mo.gov/mrap](http://mdc.mo.gov/mrap).

Many regulations are designed to sustain healthy plant and animal communities. Some rules regulate the harvest of certain species; others curtail the spread of invasive plants and animals.

## CWD MANAGEMENT ZONE

Chronic wasting disease (CWD) is a deadly deer disease that has been found in Missouri. According to wildlife-disease experts, CWD has the potential to greatly reduce deer numbers and deer hunting in Missouri.

To combat CWD, new regulations were put into effect in 2016 that allow counties to be added to the existing CWD Management Zone. This will help the Conservation Department act quickly in the event a new outbreak of CWD is detected.

Currently, 29 counties in northern, central, and east-central Missouri are part of the CWD Management Zone. Special regulations apply in these counties. For example, during opening weekend of the November 2016 firearms deer season, hunters were required to take any deer they harvested within the management zone to a sampling station to be tested for CWD.

Most regulations relating to the CWD Management Zone apply only during deer season and only to deer hunters. But one regulation applies year-round and to everyone. Grain, salt products, minerals, and other consumable products used to attract deer are prohibited within the CWD Management Zone. The following exceptions are allowed:

- Feed (such as birdseed) placed within 100 feet of any residence or occupied building
- Feed placed in a manner that excludes access by deer
- Feed and minerals used solely for normal agricultural, forest management, or wildlife food plot production practices

Grain, salt, and minerals can artificially concentrate deer in a small area. Doing so increases the chance of spreading CWD from one deer to another or from the environment to deer.



## FERAL HOGS

Feral hogs are an invasive nuisance species in Missouri. They cause significant damage to wildlife habitat, compete for food with native species such as deer, prey upon native wildlife such as quail, destroy natural areas and agricultural lands, pollute ponds and streams, and spread diseases to livestock and people.

To help eradicate these pests, the Conservation Commission approved new regulations that prohibit feral hog hunting on conservation areas and other lands owned, leased, or managed by the Conservation Department. The new rules do not apply to private property. The Commission's decision followed consideration of feedback received during a public comment period.

Research from other states shows that hog hunting actually increases feral hog numbers because it provides an incentive for the illegal release of hogs to hunt. Releasing hogs into the wild is illegal in Missouri.

Hog hunting on conservation areas also interferes with efforts by Conservation Department biologists to trap and eliminate groups of feral hogs. This work often takes weeks and involves building a large, corral-type trap; baiting the area with corn to attract hogs and get them used to the trap; and, once the hogs are concentrated inside, triggering the trap to catch the entire group. If hogs are hunted during this time, the group usually scatters and moves to a new location, making trapping difficult. Hunters usually only shoot one or two hogs instead of the entire group. Feral hogs are prolific breeders, so this strategy does not remove enough animals at once.

Instead of shooting hogs, hunters are encouraged to report feral-hog sightings to their local conservation agent or Conservation Department office. Biologists can then determine how best to capture and eliminate the entire group of hogs. For more information about feral hogs, visit [mdc.mo.gov/feralhog](http://mdc.mo.gov/feralhog).





## SMALLMOUTH AND ROCK BASS

Anglers should be aware of new rules relating to smallmouth bass and rock bass fishing. The new rules will become effective March 30. They are being put in place to provide long-term, sustainable smallmouth and rock bass populations and to simplify existing regulations for anglers.

Fishing for smallmouth and rock bass (also called goggle-eye, warmouth, Ozark bass, and shadow bass) is popular on Ozark streams. But these fish grow slowly and face high mortality. Research shows that in five years, a smallmouth will average only 12 inches in length and a rock bass only 8 inches.

For smallmouth bass, new regulations will rename existing Black Bass Special Management



**SMALLMOUTH BASS**

Areas to "Smallmouth Bass Special Management Areas." Existing special management areas will be expanded on the Big Piney, Jacks Fork, Big, and Meramec rivers. Within the special management areas there will be a new 15-inch minimum length limit and a new daily limit of one smallmouth. On all other streams, the statewide 12-inch minimum length limit and six-fish daily limit will still apply.

Rock bass have a new statewide minimum length limit of 7 inches (previously, there was no length limit).



**ROCK BASS**

In addition, the Osage Fork of the Gasconade River will be removed from the Rock Bass Special Management Areas.

The new rules are based on angler surveys, extensive research related to bass populations and harvest, and public input received during nine public meetings held by the Department throughout the state.



Feral hogs cause significant damage to wildlife habitat.



Agricultural damage by feral hogs

# ENDANGERED SPECIES

Two laws protect endangered and threatened species in Missouri: the federal Endangered Species Act (ESA) and the *Wildlife Code of Missouri*.

The U.S. Fish and Wildlife Service is responsible for administering the ESA. Under this law, an endangered species is one that is likely to become extinct, and a threatened species is likely to become endangered in the foreseeable future.

All species listed as threatened or endangered under the ESA are listed as state endangered in the *Wildlife Code*. In addition, the Conservation Department may add other species to the state-endangered list if the survival of those species is in jeopardy within Missouri.

Effective March 1, six new animals will be added to Missouri's endangered species list:

- Northern long-eared bat
- Spectaclecase mussel
- Neosho mucket mussel
- Rabbitsfoot mussel
- Salamander mussel
- Slippershell mussel

The *Wildlife Code* protects endangered species by prohibiting the importation, transportation, sale, purchase, taking, or possession of any endangered species of wildlife. It also places the same prohibitions on the feathers, hides, or other body parts of endangered species. Endangered wildlife taken legally outside of Missouri may be imported, transported, or possessed but may not be sold or purchased without written approval of the Conservation Department director. ▲



SPECTACLECASE MUSSEL



NEOSHO MUCKET MUSSEL



RABBITSFOOT MUSSEL

## How Regulations Are Made

Each year, the Conservation Department's Regulations Committee reviews the *Wildlife Code of Missouri* to ensure our state's fish, forests, and wildlife are protected. Here's how the process works.



Changes proposed by the public and Department staff are brought to the Regulations Committee for review.

The Regulations Committee researches the effects of each proposed regulation change. Research may include costs to citizens and government agencies, effects on wildlife populations, user-group surveys, public comments, and feasibility studies.



When research shows a regulation change would improve a natural resource or provide more opportunities for Missourians to enjoy nature without detrimental effects to natural resources, a proposed regulation is sent to the Conservation Department's director.







NORTHERN LONG-EARED BAT

### We Want Your Input

Citizen participation has been the cornerstone of conservation efforts in Missouri since the Department was formed in 1937. To offer input on the *Wildlife Code of Missouri*, visit [short.mdc.mo.gov/ZJ8](http://short.mdc.mo.gov/ZJ8).

Once there, you can:

- Read the full text of each chapter of the *Code*.
- Offer suggestions for how the Department can improve existing regulations.
- See a list of regulations the Department is proposing to amend and offer comments on the proposed changes.

To sign up for email alerts about proposed regulation changes, visit [sos.mo.gov/adrules/Notifications.asp](http://sos.mo.gov/adrules/Notifications.asp).



SALAMANDER MUSSEL



SLIPPERSHELL MUSSEL

MUSSELS: CLIFF WHITE



If the director approves the proposed regulation, it is submitted to the Conservation Commission, a group of four citizens who are appointed by the governor.



If passed by the Conservation Commission, the proposed regulation is filed with the secretary of state and published in the *Missouri Register*. A link to the *Register* can be found at [mdc.mo.gov/about-regulations](http://mdc.mo.gov/about-regulations).



Publication of proposed regulations in the *Missouri Register* begins a 30-day public comment period. If no comments are received, the final regulation is filed and becomes effective on the date specified in the proposal or 30 days after publication in the *Missouri Code of State Regulations*.



When comments are received, the proposal is reviewed. Based on the public's comments and available research, the Commission may decide to withdraw, modify, or implement the regulation as written.

## Black Bear

I MET WITH Wildlife Biologist Jeff Beringer, now retired, and his team of technicians and volunteers who were working on a black bear study in southern Missouri. They had trapped a female black bear during the previous summer and fitted her with a GPS radio collar to track her movements throughout the year. Gathering data on movement, weight, blood health, and birthrate gives researchers a better idea of how many black bears are in Missouri, as well as how far they roam.

We had a long hike into the den through some of the most rugged terrain Missouri has to offer. The ridges rippled like corduroy through the mature hardwood forest, with many beautiful, crystal-clear spring creeks snaking over the granite bedrock. At times, we crawled hand-over-hand up one side and slid down the other as the rock and leaf litter made walking nearly impossible. Apparently bears don't choose their dens in accessible locations.

The team stopped at the bear's last known location and started poking around likely spots in search of her den. Inside a small cave about 6 feet wide and 18 inches high, there she was on a bed of leaves with her cubs by her side, water dripping onto her head from the ceiling. Beringer crawled waist deep into the cave while two people held onto his feet in case the female bear became aggressive. He examined her, but decided not to tranquilize her due to the tight confines of the den and the possibility of her rolling over and harming the cubs. He performed a visual inspection, and then we each had a chance to peek at her.

When my turn came, I crawled under the rock ledge up to my waist, water dripping down the top of my jacket, and stared into the blackness while the biologists held onto my leg. There was just enough room for my camera with the flash attached to squeeze in front of my body. I snapped a few photos, but couldn't see where I was aiming. I sensed heavy breathing in front of me. When I checked the back of the camera, this image surprised me — she was right in front of me, and I had no idea.

We found another, more accessible den the following day. The full gamut of tests was performed on the tranquilized mother bear, while the biologists and technicians held the cubs and kept them warm until they could be returned to the mother.

Contrary to popular belief, hibernation doesn't necessarily mean deep sleep. Beringer described it as a reduced metabolic state to conserve energy through the winter months. There is a lot of sleep involved, but also some waking time, and a hibernating bear could become active if provoked and feared for her life or the lives of her cubs. That is why she is staring at the camera in the photos. She is in a half-awake state caused by our presence in the den. Too much poking around and she might take great exception to us.

When I meet magazine readers, I am frequently asked about my most exciting or interesting photo projects. There have been a lot of fascinating projects over the last decade, but this one ranks at the top of my list. The photos weren't exceptional, but being so close to such a rare, mysterious animal in the wild was something I'll never forget. Remember to be bear aware, and don't approach a bear or cubs if you encounter them in the wild.

—Story and photograph by David Stonner

📷 16–35mm lens • f/2.8 • 1/13 sec • ISO 1600

We help people discover nature through our online Field Guide.

Visit [mdc.mo.gov/field-guide](http://mdc.mo.gov/field-guide) to learn more about Missouri's plants and animals.

For more information about the Missouri Black Bear Project, visit [short.mdc.mo.gov/Z43](http://short.mdc.mo.gov/Z43).







## Columbia Bottoms Conservation Area

*Located at the confluence of the Missouri and Mississippi rivers in north St. Louis County, this 4,318-acre area provides a stopover location for a variety of migrating birds each winter.*

THE NEXT TIME you are looking for an excursion to take your mind off the winter blues, consider a trip to Columbia Bottom Conservation Area. February is a good time to catch a glimpse of migrating waterfowl and other wildlife. Of particular interest are bald eagles that may be circling the area looking for their next meal or simply perched in a cottonwood tree along the bank of the river. You may also see deer, coyotes, or trumpeter swans as you take a leisurely drive through the area. The visitor center provides programs, interpretive displays, and activities for the whole family.

Columbia Bottom is located at the confluence of the Missouri and Mississippi rivers and is managed to provide a variety of floodplain habitats, including shallow wetlands, bottomland forests, prairie, and cropland habitat for resident and migrating wildlife. The area provides public recreational activities such as fishing, boating, hunting, hiking, bicycling, and bird and wildlife watching.

The Missouri and Mississippi rivers provide ample fishing opportunities with 6.5 miles of river frontage and numerous riverbank access points, such as the confluence viewing area and the canoe/kayak access area. The boat ramp on the Missouri River also provides a boat launch, restrooms, disabled-accessible parking, and an ADA-accessible fishing platform.

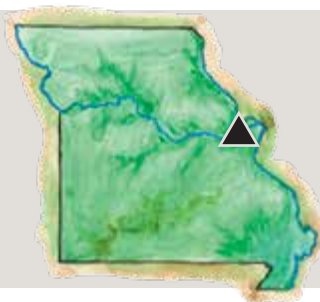


16–35mm lens • f/2.8 • 1/2 sec • ISO 200 | by David Stonner

Hunting activities on the area include managed archery and shotgun deer hunts, a managed dove hunt with hunting opportunities allocated through a preseason application and drawing, a managed youth spring turkey hunt, and waterfowl hunting. The area offers 10 wade-and-shoot waterfowl hunting units and one ADA-accessible waterfowl hunting blind. The waterfowl hunting is allocated through the managed waterfowl drawing process.

Area interpretive staff and volunteers provide public recreational and educational opportunities, such as moonlit walks to listen to sounds of the night or Dutch oven cooking demonstrations. Using the Department's Discover Nature School curriculum, staff works with area schools and home-school groups to provide field trips to explore the plants and insects living in the area's prairie or moist soil wetland.

—Andy Tappmeyer, area manager



### Columbia Bottoms Conservation Area

**Recreation Opportunities:** Hunting for waterfowl, deer, and dove; fishing, birdwatching, hiking, bicycling, wildlife viewing

**Unique Features:** Viewing platform of the Missouri and Mississippi River confluence, Missouri River boat ramp with ADA fishing platform, visitor center, seven managed wetland pools for migrating waterfowl and shorebirds

**For More Information:** Call 314-877-6014 or visit [short.mdc.mo.gov/Zkj](http://short.mdc.mo.gov/Zkj)





## IDEAS FOR FAMILY FUN

# MDC DISCOVER nature

To find more events near you, call your regional office (phone numbers on Page 3), or visit [mdc.mo.gov](http://mdc.mo.gov) and choose your region.

### INTRODUCTION TO TROUT FISHING

**FEB. 15 • WEDNESDAY • 6:30–8 P.M.**

*Southwest Region, Wildcat Glades  
Conservation & Audubon Center,  
201 W. Riviera Dr., Joplin, MO 64804  
Registration required, call 417-629-3423  
Ages 7 and older*

Have you ever wanted to go trout fishing but didn't know what to use or where to go? Discover locations to fish in southwest Missouri, essential equipment, basic fishing methods, lure selection, and how to handle, clean, and cook your catch. You will be ready to wet a hook on opening day March 1.

### DRESSER ISLAND HIKE

**FEB. 18 • SATURDAY • 9 A.M.–3 P.M.**

*St. Louis Region, August A. Busch Memorial  
Conservation Area, Hwy. D, St. Charles,  
MO 63304  
Registration required, call 636-441-4554  
beginning Feb. 3  
Ages 12 and older*

Break out of your cabin fever and discover Dresser Island, a winter wildlife haven. We will hike 6.5 miles (with an option for 3.5 miles) along the Mississippi River in search of a variety of wildlife including eagles, pelicans, waterfowl, muskrats, deer, and many others.

### BIRD BANDING

**FEB. 18 • SATURDAY • 1–4 P.M.**

*Southwest Region, Springfield Conservation  
Nature Center, 4601 S. Nature Center Way,  
Springfield, MO 65804*

*No registration required, call 417-888-4237  
for more information*

*All ages*

Drop by for a winter bird banding demonstration with the Missouri River Bird Observatory. Birds will be captured and banded in a location for easy viewing.

### OUTDOOR FAMILY FUN

**FEB. 18 • SATURDAY • 1–4 P.M.**

*Southeast Region, Cape Girardeau  
Conservation Nature Center, 2289 County  
Park Dr., Cape Girardeau, MO 63701  
No registration required, call 573-290-5218  
for more information*

*All ages, families*

Head outside to the Nature Center for family-friendly, outdoor activities. Enjoy winter hiking, animal tracking, outdoor cooking, and much more. Discover what nature can offer your family during the cold winter months.

### CREATURE FEATURE: OPOSSUMS

**FEB. 22 • WEDNESDAY • 1:30–2:30 P.M.**

*Northeast Region, Northeast Regional Office,  
3500 S. Baltimore St., Kirksville, MO 63501  
No registration required*

*Ages 7–12, accompanied by an adult*

The opossum holds the distinction of being North America's only marsupial, and it has 50 teeth — more than any North American land mammal. Join us to learn more about this interesting animal.

### VULTURE VENTURE

**FEB. 25 • SATURDAY • 12–5 P.M.**

*Southwest Region, Shepherd of the Hills  
Conservation Center, 483 Hatchery Rd.,  
Branson, MO 65616*

*No registration required, call 417-334-4865,  
ext. 0 for more information*

*All ages, families*

Learn more about "nature's clean-up crew," better known as vultures. In addition to hourly indoor presentations with Socrates, a live turkey vulture, there will be activities throughout the day. Outdoor viewing of black and turkey vultures' large winter roosts will be available. Dress for the weather and bring a camera.

### POLLINATOR HABITAT PROGRAM

**FEB. 25 • SATURDAY • 1–3:00 P.M.**

*Central Region, A.L. Gustin Golf Course,  
University of Missouri, 18 Stadium Blvd.,  
Columbia, MO 65201*

*Registration required, call 573-875-5540,  
ext. 114, or email [ryan.lueckenhoff@mdc.mo.gov](mailto:ryan.lueckenhoff@mdc.mo.gov) by Feb. 18*

*All ages*

Help spread native seeds and learn about quality pollinator habitat, even in urban and mixed-use areas.

### DISCOVER NATURE FAMILIES — PADDLEFISH SNAGGING CLINIC

**APRIL 15 • SATURDAY • SESSION 1: 8 A.M.–1 P.M.  
SESSION 2: 10 A.M.–3 P.M.**

*Kansas City Region, Warsaw Community Building,  
181 W. Harrison St., Warsaw, MO 65355  
Registration required (beginning March 1), call  
660-530-5500*

*Families, 18 and younger must be accompanied  
by an adult*

Participants will learn about conservation efforts with paddlefish and snagging techniques, accompanied with a two hour snagging experience. You will also learn how to clean and prepare paddlefish. Lunch is provided.



Subscribe online • [mdc.mo.gov/conmag](http://mdc.mo.gov/conmag) • Free to Missouri households



## I Am Conservation

Greg and Donna Mowery are photographed with two big brown bats in their home in Pacific. The couple became involved with bat rehabilitation through the Missouri Master Naturalist Program. Through that program, they had an opportunity to participate in a bat monitoring study and later became involved with the Missouri Bat Census. They received training in bat identification, monitoring, field studies, care and feeding, and white-nose syndrome education. Once they were trained to handle and care for bats, they were able to start participating in the rescue and rehab of bats in their area. They get calls to help remove bats from homes or businesses, as well as to rescue injured bats. "Our main goal," said Donna, "is to get the bats back into the wild as soon as possible." The couple takes their bat rehabilitation work very seriously, noting that bats play a big role in our lives. A single bat can eat up to 5,000 insects in a single night. This reduces pest insect populations, especially mosquitos. Donna says their busiest time is spring because that's when bats are having their young. "We start receiving orphaned pups around May or late April," said Donna. This past spring, the couple had 18 baby bats to care for. "The newborns require a lot of care," said Donna. "With that many little mouths, we had a lot of long nights." —*photograph by Noppadol Paothong*